WHAT IS CLAIMED IS:

1. A method for treating a pathology characterized by damaged myelin or neurological deterioration, comprising (i) providing a composition *in vitro* that consists essentially of mesenchymal stromal cells and a physiologically compatible carrier therefor, (ii) exposing said composition to conditions such that said mesenchymal stromal cells differentiate into differentiated cells of a type selected from neuron and oligodendrocyte, and (iii) allowing said differentiated cells to compensate for said neurological deterioration or damaged myelin in a subject suffering from said pathology.

2. A method according to claim 1, wherein step (ii) comprises introducing said composition into the nervous system of said subject.

3. A method according to claim 1, wherein step (ii) is implemented *in vitro* and step (iii) comprises introducing said differentiated cells into the nervous system of said subject, such that said differentiated cells compensate for said damaged myelin or neurological deterioration.

4. A method for preparing differentiated cells, comprising (i) providing a composition that consists essentially of mesenchymal stromal cells and a physiologically compatible carrier therefor and (ii) exposing said composition to conditions such that said mesenchymal stromal cells differentiate *in vitro* into neurons or oligodendrocytes.

5. A composition that consists essentially of immortalized mesenchymal stromal cells and a physiologically compatible carrier therefor.

6. A composition that consists essentially of immortalized mesenchymal stromal cells, one or more exogenous genes, and a physiological compatible carrier therefor.

7. A composition according to claim 6, wherein the exogenous gene is hTERT.

8. A method for treating a pathology characterized by damaged myelin, comprising (i) providing a composition *in vitro* that consists essentially of mesenchymal stromal cells and a physiologically compatible carrier therefor, (ii) culturing said cells in a medium comprising a neuroblastoma conditioned medium, wherein said culturing step provides oligodendrocyte precursor cells capable of differentiating into oligodendrocytes, and (iii) allowing said differentiated cells to compensate for said damaged myelin in a subject suffering from said pathology.

9. A method according to claim 8, wherein said neuroblastoma conditioned medium is B104 conditioned medium.

10. A method according to claim 9, wherein step (iii) comprises introducing said oligodendrocyte precursor cells into the nervous system of said subject, such that said differentiated cells compensate for said damaged myelin.

11. A method for differentiating a mesenchymal stromal cell into an oligodendrocyte precursor cell, comprising (i) providing a composition *in vitro* that consists essentially of said mesenchymal stromal cells and a physiologically compatible carrier therefor, (ii) and culturing said cells in a medium comprising a neuroblastoma conditioned medium, wherein said culturing step provides oligodendrocyte precursor cells capable of differentiating into oligodendrocytes.

12. A method according to claim 11, wherein said neuroblastoma conditioned medium is B104 conditioned medium.

13. A method for differentiating a mesenchymal stromal cell into an oligodendrocyte, comprising (i) carrying out the method according to claim 12, and (ii) exposing said oligodendrocyte precursor cells to conditions such that at least a portion of said oligodendrocyte precursor cells differentiate into oligodendrocytes.

14. A method according to claim 13, wherein step (ii) comprises isolating the oligodendrocyte precursor cells from the B104 conditioned medium.